

IN THIS ISSUE:

JUNE PICNIC IN REVIEW	1
THE ROYAL OBSERVATORY OF GREENWICH, ENGLAND	1
BIG NEWS FROM A FORMER TCAAer	2
THE MOBILE MAN CAVE a.k.a. ASTRO-TRAILER	3
ILLINOIS DARK SKIES STAR PARTY	3
JUNE OBSERVERS' LOG	4
JULY SKY GUIDE	4
WERNER AND MILLER AT ALCON	5
RECENT AND UPCOMING E/PO EVENTS	6
UPDATES ON TCAA STORAGE AT SGNC	6
AL OBSERVING PROGRAM STANDINGS—QUARTERLY REPORT	7
M51 SUPERNOVA	8
CONSTELLATION OF THE MONTH: HERCULES—THE STRONG-MAN	8
NASA UPDATES	10
TREASURER'S REPORT	11
2011 POS SCHEDULE AND COORDINATORS	Back Cover

JUNE PICNIC IN REVIEW

This year's TCAA summer picnic was held on June 25th at the home of John and Joyce Werner just southeast of Bloomington. Ten club and family members were present. In attendance this evening were John Werner, Carl Wenning, Bob Finnigan, Dan, Chris, and (daughter) Miller, Lee Green, Dave and Donna Osenga, and Tom Weiland.

The weather did not cooperate fully. A constant light sprinkle of rain kept the event pretty much indoors despite the fact that John as set up a grill, drinks, chairs, table, and a tent in his backyard prior to everyone's arrival. Members were able to cook their entrees under an awning and everyone had a great time nestled into the joint kitchen-dining room for the meal. After a fine meal with lively discussion (focusing mostly on astronomical travels), the group met in the driveway to look at John and Dan Miller's latest creation – a "mobile man cave." (See the article accompanying.)

The food was excellent and the camaraderie cordial; a great time was had by all. Thanks and a tip of the hat to John (and to Joyce for baking those absolutely scrumptious cherry and apple pies!) for arranging and hosting this very enjoyable 2-hour event.

THE ROYAL OBSERVATORY OF GREENWICH, ENGLAND

By Tom Weiland

While on an extended visit to the British Isles my wife Carolyn and I had the opportunity to take a day trip south of London to visit the Royal Observatory and the historic Flamsteed house, both of which are technically part of the National Maritime Museum in Greenwich, England.

The Royal Observatory at Greenwich was founded by King Charles II in 1675, who allotted £500 for construction of the building. Its original purpose was to enable mariners at sea to find their ship's position from the sun, moon and stars. For nearly 300 years astronomers worked at Greenwich, making observations utilizing transit telescopes and publishing their results to this end.

The Astronomers Royal lived in Flamsteed house (named after John Flamsteed the first Royal Astronomer), but most of their observations were carried out in a separate building now called the Meridian Building, which was extended eastward in stages during the 18th and 19th centuries. The Prime Meridian extends through one of these additions.

As finances were tight, John Flamsteed had to use his own personal telescopes to make his observations. Unfortunately none of these original telescopes survive as they were sold by his family upon his death. The earliest observatory telescopes on display are two large quadrant scopes ordered by the second Astronomer Royal, Edmond Halley.

The largest telescope on display is the 28-inch refracting telescope that was installed by William Christie in the Great Equatorial Building in 1893. It is the largest of its kind in Great Britain and the 8th largest in the world and is still used on special occasions. The installation of this scope was a direct result of a change in direction and purpose instituted by Sir George Biddell Airy. Although the royal astronomers continued to produce nautical almanacs and distribute Greenwich Time, they also began to carry out observations that aimed to provide a better understanding of the universe. As such, old transit scopes were not practical because they could only be used to observe the narrow section of sky along the north-south line of a meridian. New instruments (such as the 28-inch) were needed that could rotate and look in all directions.

On display as well is the only surviving section of the 40-foot instrument built by William Herschel who had his own observatory in Slough.



(Continued on page 2)

The *OBSERVER* is a monthly publication of the Twin City Amateur Astronomers, Inc., a registered 501 (c)(3) non-profit educational organization of amateur astronomers interested in studying astronomy and sharing their hobby with the public.

TCAA OFFICERS

President	Dave Osenga 309-287-0789 DaveOsenga@msn.com
Vice-President	Tom Weiland 309-830-0167 tomcea52@yahoo.com
Secretary	Lee Green 309-454-7349 lee@starlightsoftware.com
Treasurer/ ALCor/RA	Duane Yockey 309-452-3936 duane@lybinc.com
3rd Director	Paul Pouliot 815-844-7065 ppouliot2@mchsi.com
4th Director	Tony Cellini 309-829-9269 drksky1056@comcast.net
5th Director	Dan Miller 309-473-3465 damiller@mail.millikin.edu
Historian	Carl Wenning 309-830-4085 carlwenning@gmail.com
Webmaster	Lee Green 309-454-7349 lee@starlightsoftware.com
Property Manager	William Carney 309-829-7748 willcarney@aol.com

The Observer Editor

Erin Estabrook
314 Covey Court
Normal, IL 61761
309-454-6894
erin@lybinc.com

Submission deadline is the first of each month.

Membership Dues

Individual Adult/Family \$40
Full-time Student/Senior \$25
Electronic Newsletter \$25

To join the TCAA, send your name, contact info and dues payment to
Duane Yockey
508 Normal Avenue
Normal, IL 61761

THE ROYAL OBSERVATORY OF GREENWICH, ENGLAND (CONT.)

(Continued from page 1)

Herschel (discoverer of the planet Uranus in 1781) and other gentlemen astronomers made many important advances in understanding the universe.

Also at the site are several other buildings including the Altazimuth Pavilion and the New Physical Observatory which had been used to apply new photographic techniques to the study of astronomy and now houses the Astronomy Centre with its many interesting interactive exhibits. There is also the state-of-the-art Peter Harrison Planetarium.

As we were leaving the observatory and heading to the main Maritime Museum building, we had the opportunity to visit with members of the local astronomy club (Flamsteed Astronomy Society) who had set up a solar telescope equipped with a Hydrogen-alpha filter for some public viewing. Conditions were favorable, but sunspot activity on that particular day was minor, although we were able to see a couple of solar prominences.

After exploring the Maritime Museum we ended our visit to Greenwich with a pint at a local pub before taking our train back into London. All in all it was a wonderful day that I will long remember.



BIG NEWS FROM A FORMER TCAAer

Hi TCAAers,

I hope that you don't mind me making this self-promoting post, but I have lots of new information to share. First of all, I would like to introduce my new website: <http://www.AstroArn.com> From here you can view new images, read more about me, order high-quality prints and gifts from Mpix, or get access to eBooks and tutorials about astrophotography. Furthermore, to get up-to-date news on new images, new eBooks, or new tutorials I produce, you can follow me on Facebook or Twitter by clicking on the links on the bottom of my homepage. And finally, I would like to announce the release of a new eBook *Photography At Night: An Introduction to Astrophotography on a Budget*.

This eBook will help you learn how to start taking images of the Universe around you. It will guide you through the process of producing breathing-taking views of the night sky - starting with just a basic camera! As your aspirations for nighttime photography grow, explore how a couple simple tools will unlock views that are quite literally out-of-this-world! With this 155-page eBook, absolutely no prior experience in astronomy or photography is needed - just a desire to capture the beauty of the world above! You can purchase this eBook on my new website at: <http://www.astroarn.com/books-tutorials/>. If you have any questions, please feel free to contact me! I wish you all the best in your astronomy adventures.

Robert Arn
robert@astroarn.com
www.AstroArn.com

You might have noted that Robert recently had another of his astronomical photographs posted on Astronomy Picture of the Day (APOD) for June 6th. Check it out at the following URL: <http://apod.nasa.gov/apod/ap110606.html>

THE MOBILE MAN CAVE a.k.a. ASTRO-TRAILER

By John Werner

Professor Dan Miller had been talking about converting his livestock trailer into an RV trailer for some time. His dream was to have a pop-up trailer mounted over storage of the usual “too much” astronomy gear. Star Party accommodations and equipment transport solved! I can tell you that when I first laid eyes on the trailer, I said to myself: “Are you kidding me?” See for yourself below. Black and white does not do justice to the rusting, faded, red-hulk made in the 70’s.



Now I have to admit, the original pricing was right, \$300 for the livestock trailer and another \$300 for the large, but well-used, pop-up trailer that was to be mounted on top of a fabricated-from-scratch metal frame. Of course the tires were 30 years old, the electric brakes needed refurbishing, the wheels needed sand-blasting and painting, the axle needed to be removed from the pop-up, new bearings and races in the hub, new flooring, new lights, new wiring, and most challenging of all, the cables for lifting the pop-up were cut and shortened (reason that Dan picked up the pop-up so cheap-it was dangerous to be inside!), so we had to fabricate new mountings for electrically powered lifting with inside bolt-in bracing (Dan innovations, but a once-and-done proposition that may not have worked – there were lots one-off’s during the build.). The cost went up, but we figured that a pop-up trailer with storage would be \$8,000 and not have the endurance of a double-axle trailer – so we invested a few hundred hours and purchased the needed hardware and tools (plasma cutter, MIG welder, other misc. items).

We plasma cut out the original sheet metal and MIG-welded in 2”x2” metal framing, enclosed the frame in sheet metal to serve as storage area. The original metal was salvaged to help defray some of the expense. I don’t have enough space to list *ALL* of the mini-projects along the way. This was a four-month design-build effort, something like the observatory Dan and I built on my family farm. After many bruises, strains, and weld burns through shirts and skin, and a few drinks, the project was completed. Room up front for an ATV. Yes, we have some “minor” finishing touches to put in place, but thought you should see the near-finished “Mobile Man Cave” trailer as it sits today. No, we are not making a twin!!

ILLINOIS DARK SKIES STAR PARTY

Our friend Ray Watt from the Springfield Astronomical Society has asked that we announce the 10th annual Illinois Dark Skies Star Party to be held at the Jim Edgar Panther Creek State Fish and Wildlife Area, 25 miles Northwest of Springfield, Illinois, Sept. 29 – Oct. 1, 2011. Here is the information he has asked us to provide to the membership.

Registration – Registration fees are due by September 16, 2011 to ensure availability of meals and t-shirt/hooded sweat-shirt orders:

- \$50 per person. There is plenty of room for tents, campers and RVs.
- \$80 per family (Immediate family of four - \$10 per person over four).
- The general observing area has restrooms, but NO ELECTRICITY.

There are several large group camping areas for your use, which means lots of room to stretch out.

Adjacent to the event site are extensive camping facilities for tent and trailer campers, self-contained RV pads and nine lake-side cabins. However, the RV sites and Cabins (electricity available) must be reserved through the Reserve America web site: www.reserveamerica.com.










Check out the club’s new web site for registration form, maps and meal menu: <http://www.sas-sky.org>



So, we are looking forward to the first of what we hope will be many astronomy and cultural field trip adventures (sleeps six) – praying that all the welds hold and that there is minimal sway going down the road. I learned many skills – it’s that way when you work with Dan. My contribution—keep safety in mind and help solve some of the many design issues. We feel good and will feel better after the first safe and successful trip.

JUNE OBSERVERS' LOG

JULY SKY GUIDE

- | | | |
|-----------|---|---|
| 01 | Partial solar eclipse,
4 A.M. |  |
| 02 | The Moon passes 5° south of
Mercury,
9 P.M. |  |
| 06 | Mars passes 5° north of
Aldebaran,
2 A.M. |  |
| 07 | The Moon passes 8° south of
Saturn,
11 P.M. |  |
| 18 | The Moon passes 6° north of
Neptune,
5 A.M. |  |
| 20 | Mercury is at greatest eastern
elongation (27°),
midnight |  |
| 21 | The Moon passes 6° north of
Uranus,
2 A.M. |  |
| 23 | The Moon passes 5° north of
Jupiter,
8 P.M. |  |
| 27 | The Moon passes 0.5° south
of Mars,
noon |  |
| 29 | Asteroid Pallas is at opposition,
9 A.M. |  |

With the first tolerably clear and moonless night in many a month, TCAAers William Carney, Tony Cellini, Dave Osenga, Bob Finnigan, Lee Green, and Carl Wenning took advantage of the situation to view from SGNC during the night of Friday/Saturday, June 3/4. The first object of interest was the dual galaxy M51 where a 14th magnitude supernova had been reported most recently. While no one was able to see the supernova visually (observing with nothing larger than 11-inch telescopes), Bob was easily able to image this celestial phenomenon from under the dome of SGO (See related story and images on page 8 of this edition).

Despite the less than a completely transparent sky, other TCAAers spent time making visual observations. Dave observed some 20 Messier objects with his Edmond's 8-inch reflector. He is nearing the end of the AL's Messier program and will soon complete all observations required for the honorary level of the award program. Lee spent the evening and early morning hours making observations of open clusters that are part of the AL's observing program (45 to date + 17 drawings). This was his third session doing so. Carl spent the evening and early morning hours making observations of Herschel II objects, having added several dozen more objects – mostly galaxies – to his listing. Tony spent time testing out his new G-11 mount and its new firmware release as well as trying some imaging with the TMB130 scope using the club's QSI-583c CCD camera. Results of 55 minutes of M27 are shown below. Bob focused his attention imaging M51, M16, and M27; these images are also below. William encountered a significant number of computer-related problems and was unable to complete the photographic work he had intended for the evening. Dave and William concluded their observing and departed around midnight. Lee and Bob departed at about 3 a.m. Carl and Tony departed shortly after 3:30 a.m.

Despite the Clear Sky Chart forecast of low transparency, William, Carl, Lee, and Bob tried viewing at SGNC on Sunday, June 5th. Even during post-twilight darkness Carl was unable to view any of his faint Herschel II galaxies and so left around 10:15 p.m. William continued to have "ascom" computer problems... Lee reported spending all night working with Bob trying different approaches to correcting periodic error including using Celestron's PEC-Tool, rebalancing the scope, but did not have much luck. He reported, "We have concluded that the Edge HD's mirror is still moving despite the improvements Celestron built into these." Paul Pouliot went out that evening (and the next) to his dark sky observing spot near Blackstone. He reported, "Both nights were mostly spent trying to learn my way around the Virgo cluster using my 10-inch dob."

On Monday, June 6th, Lee went to SGO. He reported, "Back to previous camera. With the PEC training, these came out pretty well, although I set the filter positions incorrectly. Took some M104 and M51 images. Larry joined us and was immersed into our imaging session. Fixed the filters and took more images of M104 and M27." Brian Barling observed from home this same evening.

On Tuesday, June 7th, Tony shot a close-up of the Pelican Nebula with his TMB130SS. Lee and Larry Leetzow were also present for other observations. William seems to have overcome his "ascom" problem that evening and was able to photograph an asteroid. William also reported, "Tuesday night I observed dual satellites in the same orbit - USA 228/NOSS-3 5 (B) and 229 (A) - very close together about 11:35 pm. I also photographed the close approach asteroid 267494 after I got my laptop software straightened out. The best shot was about 1:15 am." William reported later that Josh Lindsey had assisted with fixing the computer glitch, but that it had returned a few nights later. Also observing that evening were Bob Finnigan and Tony Cellini.

Timke's Law ("When the sky is clear, the moon is full.") was in full force for yet another month on June 15th. Despite this fact, a number of intrepid observers went out to SGNC for some observing. William spent time working with his still malfunctioning computer which limited his observations. Tony and Bob busied themselves in SGO making very successful H-alpha observations of the Crescent Nebula. Carl spend the evening tooling around with a variety of eyepieces after he inadvertently had left his eyepiece case at home. He spent the evening enjoying "showcase objects," many of which he had not observed for many years. He remarked that he had forgotten and was pleasantly surprised by how bright many of the galaxies in the Coma-Virgo region were. The very transparent sky helped despite the presence of the full moon low in the southeast. Carl observed about 30 such objects before calling it quits for the evening. Tony, William, and Bob called it an evening around midnight when a bank of clouds moved in from the north.

Despite the hazy sky, William and Bob returned to SGNC for additional observing on Saturday evening, June 18th. William continued to work with his computer-telescope problem but was unable to resolve it. Bob focused his attention on photographing M57 and the 15.4-magnitude background galaxy IC 1296. The galaxy showed up brightly in the image. (This is absolutely amazing! A few decades ago professional astronomers using some of the world's largest telescopes were limited to about 20th magnitude – only about 100 times dimmer.) Bob was able to secure about 1.25 hours of images before leaving as the result of a cloudbank moving in.

The next evening, Sunday, June 19th, Bob, William, Tony, and Carl returned yet again to SGNC when the sky unexpectedly cleared late in the day. Again, the sky wasn't terribly dark or transparent due to the high humidity,

(Continued on page 5)

JUNE OBSERVERS' LOG (CONT.)

(Continued from page 4)

but several observations were made. Bob continued imaging M57 and IC 1296; Tony helped William to begin to resolve his computer problem; Carl was able to observe two AL Open Cluster observing club objects before he discovered a very significant play in the azimuth axis of his CPC 1100 telescope. This play made it difficult to find objects and shut down his observing for the evening. (Carl disassembled his CPC 1100 mount the following Tuesday and found that the problem was due to two loose set screws on the azimuth axis; the telescope is now fully back in operation.) Observers left by around midnight.

On Monday, June 20th, Bob spent an hour imaging Messier 10, a globular cluster in Ophiuchus. He was able to get a nice photograph. As the sky continued to clear, he was also able to get a stunning photograph of the Veil Nebula using luminance and Hydrogen-alpha channels only. That same evening Tony was able to photograph a -7 magnitude Iridium satellite flare. Over the course of the prior few evenings Tony alerted observers to the passes of these satellites, and quite a few were observed.

On various evenings throughout the month, club members made numerous other visits to SGNC to make mostly photographic observations given the limited sky transparency. Larry Leetow has been taking time to make binocular Messier observations as well.

June 27th saw the start of a nearly unprecedented (at least for this year) run of clear days. The sky on the evening of the 27th was clear but hazy. Nonetheless, TCAAers did get out for a bit of viewing. June 28th was without a doubt the best night of the last six months, and TCAAers took good advantage of it. Observing that evening from SGNC were members William C., Lee G., Bob F., Tony C., Carl W., Josh L., Tim W., Larry L. and Mark C. Joining for the telescope orientation session that evening were also Mark Honzell and Don Cooper. Mark H., Don C., and Josh L. participated in a 45-minute orientation session followed by an hour of viewing. Larry L. had intended to join the group but was delayed in arriving.

Referring to the orientation session Mark H. remarked the next day, "Having never attended an observing session other than [in] my backyard by myself, I was impressed with the enthusiasm and kindness of all the participants! Thank you! Carl did a wonderful job of presenting the basics in both technical setup of the Dobsonian scopes, their functions, and how to use the star maps to get around. The Messier index cards turned out to be a great tool! End result: I actually found a few objects that I was looking for! Okay, I did find the Omega nebulae when I was looking for the Trifid, but I recognized it didn't seem correct when nothing expected was nearby. Carl gladly stepped in, identified what I was looking at and helped us in identifying we were off a couple of degrees. There were a couple items I could not locate because there were no nearby reference stars in the view. Still, the ones I actually was seeking and found became treasures. Thanks again for the wonderful experience!"

On the evening of the 29th, Tony and Bob were working under the dome at SGO. They switched out Tony's refractor for one of Bob's telescope. Bob was able to get a great looking image of the Trifid Nebula (M20, see image). Unfortunately, when carrying his telescope to the ground level Tony missed a step. He ended up spraining his left ankle. Thankfully nothing important such as his telescope was hurt! ☺

Other observing sessions by other observers undoubtedly took place throughout June given the turn to clearer and more transparent skies. These are the key items that were reported to the author of this article. If you would like to see some of your efforts documented here, please send updates to carlwenning@gmail.com before the end of each month.

To see other work by club members (mostly Bob and Lee), visit the TCAA web site at <http://www.tcaa.us/Astrophotos.aspx>. To see some of Tony's latest photographic work, visit his online blog at the following URL: <http://www.dwfoto.com/blogs/blog6.php>. If you haven't visited either of these sites lately, you are missing out on some absolutely terrific results.



M27



M16



M20

WERNER AND MILLER AT ALCON

John Werner and Dan Miller (and some of their family members) attended the 2011 Astronomical League Convention at Bryce Canyon National Park in Utah from June 29 through July 2. John gave a day-by-day update of convention activities, posting his messages on the club's listserv. John mentioned that he and Dan have also spent time with Bobby Arn at the convention, and that they did manage to get in some observing under very dark skies. We look forward to a comprehensive article to appear in this newsletter's August issue – including a number of photographs if possible.

RECENT AND UPCOMING E/PO EVENTS

The June public observing session on June 4th at SGNC was cancelled due to an overcast sky and the threat of thunderstorms. Nonetheless, Lee Green, Bob Finnigan, and Larry Leetzow went out to SGNC in the event that anyone might show up for the cancelled POS. Fortunately, no one did.

That same day, Dan Miller and John Werner hosted a group of enthusiastic Cub Scouts (total of 30 scouts and chaperones) at Heyworth. John reports, "Although there was no dark sky, we set up LXD75 mount with a Newtonian 8 inch and the Sky Scout. We pitched TCAA Public Observing sessions and the opportunity to view through a variety of telescopes. I covered Newtonian optics and Dan provided an overview of the Sky Scout and how it could be used to educate young astronomers. We located Saturn and provided the audio presentation of the planet. Although there was [an overcast] sky, the interest was high and we hope to see some of the attendees at a future POS."

Also on June 4th, Paul Pouliot gave a presentation to yet another group of Cub Scouts. He reported later, "The outreach for Cub Scout Pack 22 from Chenoa went well despite challenges. I didn't get location directions and head count until late Friday evening, couldn't find William's phone number to let him know, had about 45 people instead of the 10 Cub Scouts that I had been told to expect, and had to pack up after a half hour due to lightning and rain. What we did do, though, was have a lively discussion about what is a planet and why poor ol' Pluto's official designation was changed. We talked about the differences between comets, asteroids and meteors. Several of the kids shared their stories of seeing some "really cool shooting stars" on other campouts. We had just started to look at how telescopes work when the rain started really coming down."

Rain interfered yet again with another E/PO of the TCAA, but despite receiving a bunch of lemons, TCAAers were able to make lemonade. Four TCAAers showed up to assist at the Great American Campout held at SGNC on Saturday, June 25th. Lee, Bob, Carl, and Larry were present to greet the 75 or so campers who were present despite the intermittent showers. Lightning and thunder also made their appearance during this time, but it did not keep campers from having a good time. Starting just after 9 p.m., Lee gave a 20-minute talk about the TCAA and things that we view. He was able to talk about our SGNC public observing sessions and pass out a few brochures.

On the evening of June 28th, Carl provided a 45-minute orientation to the use of the club's two 10.1-inch Coulter Odyssey telescopes. Observers Mark Honzell, Don Cooper, and Josh Lindsey spent an additional hour under the unusually dark and clear sky using star maps and Messier cards to find several Messier objects. More information about this session can be found in the June Observers' Log.

Here is a listing of education/public outreach and other club events scheduled from July through early August:

- ☆ July 2 (dusk) – Members-Only Observing Session, SGNC, no coordinator
- ☆ July 5 (6:30 pm) – Board Meeting, Lewis, Yockey, & Brown.
- ☆ July 9 (9-11 pm) – July POS - *Galactic Travelers: Globular Clusters*, SGNC, coordinator: Carl
- ☆ July 25 – Milestone Early Learning Center (possible), coordinator: Lee
- ☆ July 28 – *Inspiring the Next Generation*, Challenger Learning Center, coordinator: Lee
- ☆ July 30 (dusk) – Members-Only Observing Session, SGNC, no coordinator
- ☆ August 6 (8:30-10:30 pm) – August POS - *Small Bodies, Large Impacts*, SGNC, coordinator: Dave

UPDATES ON TCAA STORAGE AT SGNC

Duane Yockey, Lee Green, and Carl Wenning met at Michael's Restaurant in Bloomington on Friday, June 10th to discuss storage needs associated with the barn re-development project at SGNC. Duane shortly thereafter sent some comments to George Farnsworth about drainage and flooring concerns. George got back with Duane on the 15th noting that trenching would take place outside the barn to redirect rainwater. He also noted the gravel would be spread within the barn on June 22nd.

In George's communication of the 15th, he asked that the TCAA consider contributing both labor and financing to support the work. He also noted that the hurricane fencing surrounding the various stalls will be installed first, with the TCAA enclosure to follow. The club's enclosure (approximate 8' x 16') will be fully enclosed, top to bottom, and will include special lighting – perhaps red and white light systems.

Lee travelled to the Nature Center on June 22, 24 and 27 to assist preparation of the floor for the SGNC shed. On the 22nd, he assisted George Farnsworth and Doug Oehler in placing and grading the limestone gravel. On the 24th, he helped Doug and Julian Westerhout pack the floor and on the 27th he helped George, Doug and Bill Hickman layout the positions of the concrete footings that dug soon thereafter. Once that is complete, additional build out tasks can begin. Completion of the projects is still months away, but much progress has been made. Thanks, Lee, for your wonderful contributions on behalf of the TCAA!

AL OBSERVING PROGRAM STANDINGS—QUARTERLY REPORT

Below is a listing of the status of active TCAA observers pursuing AL observing programs reported as of June 30th. Because the spring skies have been pretty much overcast this year, very few new observations were made but for a few exceptions.

- ☆ Dave Osenga has completed 107 telescopic Messier observations and 46 binocular Messier observations. He has just three observations left to earn the AL's honorary Messier certificate and four for the AL's binocular Messier certificate.
- ☆ Lee Green, having just begun the AL's open cluster observing program, has viewed and drawn numerous open star clusters.
- ☆ Carl Wenning has added one more "very difficult" planetary nebula to his observing program record leaving 8 objects before he earns the advanced level certificate and pin. He has now completed more than half of the 400 required observations for the Herschel II observing program.

If you would like to have your information included in next October's listing, be certain to forward your observing totals to Carl by the end of September. Be certain to get your completed observing records to our ALCor, Duane Yockey, as soon as the observing program is complete so that you might be appropriately recognized on a timely basis. Our next award presentation will be at the February Annual Meeting.

Astronomical League Observing Club	Brian Barling	William Carney	Lee Green	Dave Osenga	Carl Wenning	Duane Yockey
S. Skies Binocular 50					(50)	(50)
S. Sky Telescope 50					(52)	(50)
Telescope Messier Pro70/Hon110	(110)	(110)	110**	107*	(110)	31
Caldwell 109					34	
Binocular Messier 50		(100)	(72)	46	(78)	49
Deep Sky Binocular 60		60*	43		(60)	
Herschel Club 400	268	(400)	(400)		(400)	
Herschel II Club 400					217	
Urban Club 100		(100)	(100)		(100)	
Comet Club Silver12/Gold30		(31)			4	
Double Star Club 100	17		100*		(100)	
Planetary Nebula Club Bas60/Adv110		1			(102)*	
Globular Cluster Club 50			(55)		(65)	
Lunar Club 100	(100)	(100)	(100)	(100)	(100)	
Lunar II Club 100		34				
Asteroid Club Reg25/Gold100		(52)				
Earth Orbiting Satellite 28		5				
Open Cluster Club B100/25//A125/50			45/17		2	
Total (Master Observer requires 10)	2	8	7	2	(10)	2
Outreach Award Basic10/Stellar60/Master160			(*, **), ***		(*, **, ***)	

* Program or first award level now complete. ** Second award level now complete. *** Third award level now complete. Numbers in parentheses (#) indicate that the associated pin and/or certificate has been received. AL recognition (certificate and pin) will be given at the next general membership meeting if available.

M51 SUPERNOVA

By Lee Green

On Tuesday May 31, French amateur astronomer Amédée Riou noticed an extra star in an outer spiral arm of the Whirlpool Galaxy. The star, shining at magnitude 14, was not present in previous images and he suspected something special. It wasn't long before others were able to confirm his discovery and by June 3, the report was making its rounds through the internet. From a spectrum taken on June 2, the object was identified as a Type II supernova which resulted from the collapse of a massive star.

On June 3, acting on a tip from a message on our listserv, TCAAers Bob Finnigan and Lee Green were able to image the galaxy and easily found the bright blue object. The "before and after" images are shown here.

M51 has recently become a supernova factory. Its last supernova (SN2005cs) was found just 6 years ago and a third was found 17 years ago. This rate of supernova production is nearly unprecedented. In our own Milky Way galaxy, there have only been two observed supernovae in recorded history. In 1054 a star exploded and we see those remnants in the Crab Nebula. Around 1680, another star popped and we see it in Cassiopeia A. In 2008, NASA reported that the Chandra X-Ray observatory detected what is thought to be another supernova that occurred about 160 years ago near the center of our galaxy, although it was not observed visually.



Before



After

CONSTELLATION OF THE MONTH: HERCULES—THE STRONGMAN

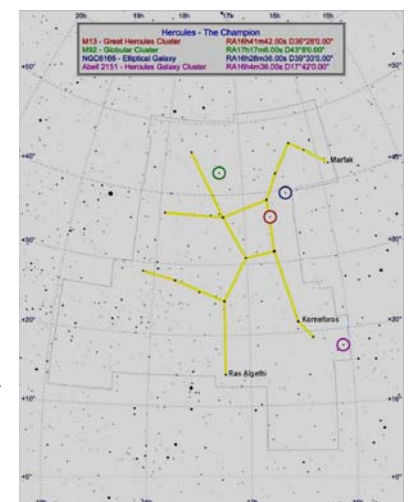
Hercules is a prominent constellation that is best viewed in the summer. While the stars are Hercules are not particularly bright, the shape of Hercules body forms a well-known asterism, the Keystone. Hercules is shown kneeling with his head to the south.

Hercules, the Strongman, was born to the mortal Alcmena, but his father was the god Jupiter. Jupiter's wife, Juno, became jealous and sent two snakes to attack the baby Hercules. His strength was obvious even then, and he killed the two snakes. Juno later imposed a spell of madness on Hercules, and the crimes he committed under this spell placed him in service to his cousin, King Eurystheus, until he could atone for his crimes. King Eurystheus commanded that Hercules perform twelve labors in order to free himself from the guilt of these crimes.

Hercules is the 5th largest constellation covering 1225 square degrees. It is the 22nd brightest constellation and reaches opposition on June 11.

Several of the stars of Hercules are named, however these do not include the stars of the Keystone. Ras Algethi is a double star and is a variable star. Marfak is also a striking double star.

Hercules is away from the Milky Way and among the many deep space object are two



(Continued on page 9)

CONSTELLATION OF THE MONTH: HERCULES—THE STRONGMAN (CONT.)

(Continued from page 8)

large and bright globular clusters. M13, the Great Hercules Cluster and M92 are both remarkable specimens. NGC6166 is a reasonable bright galaxy that is surrounded by several dimmer galaxies. This cluster of galaxies is part of the Hercules Supercluster which includes Abell 2151 the Hercules Galaxy Cluster.

Hercules' 12 labors are described below.

For his first labor, Hercules had to kill the ferocious lion that roamed the valley of Nemea in Greece. After killing the Nemean lion, Hercules was supposed to bring its skin back to King Eurystheus. Since no weapon could hurt the lion, Hercules finally strangled it with his bare hands. He was unable to cut the tough skin of the lion until he used the lion's own claw. Instead of giving the hide to the king, he took it to his father Jupiter. Jupiter had been watching Hercules, and allowed him to wear the skin in honor of his courage. This tough skin protected Hercules as it had protected the Nemean lion. To commemorate his son's victory, Jupiter placed a figure of a Lion in the sky.

The second labor of Hercules was to kill the Hydra, a water-serpent of Lerna, with eight mortal heads and one head that was immortal. This task was difficult because if one head were cut off, the Hydra would grow two heads to replace it. To further complicate this labor, Juno sent a crab to nip at Hercules. Hercules trampled the crab underfoot, and pulled up a tree trunk to use as a torch. As he cut off each mortal head of the Hydra, he burned the wounded neck with fire from his torch so that no more heads would grow there. When he finished dealing with the mortal heads, he cut off the immortal head and buried it under a huge boulder. Then he dipped his arrows in the poison blood of the Hydra. Now he had all the protection he is usually shown with—his lion-skin tunic, his club, and the poison arrows.

For his third labor, Hercules had to catch and bring back alive the boar of Erymanthus. He banged his club on the ground, shouted, and chased the boar to exhaust it. Then he trapped it in a snow bank, caught it in a noose, and took it back to King Eurystheus. The centaur Chiron had helped Hercules to plan how to catch the boar. After Hercules succeeded, the centaurs had a party to celebrate. But the celebration had a tragic ending when Chiron was accidentally killed.

His fourth labor was to catch a stag with golden horns and hoofs of brass, and bring it back alive. It would have been easier to kill the stag, but after a year of trying, Hercules finally captured it. As he was taking it back to King Eurystheus, Diana stopped him and demanded to know what he was doing with her stag. When he told her of his labors, she allowed him to take it if he would promise to release it unharmed after he showed it to the King.

The fifth labor of Hercules was to chase away the man-eating Stymphalian birds. These birds lived in a marsh. They had sharp beaks and brass feathers that would shoot out like arrows. Since Hercules could not walk or swim through the marsh to get to the birds, Jupiter allowed Athena to help by giving him brass cymbals that would frighten the birds. When the noise of the cymbals made them fly up from the marsh, Hercules shot some of them with his poison arrows. The rest of the birds flew away. In the sky, three birds are often related to the Stymphalian birds. They arc across the sky from Aquila, the Eagle on to Cygnus, the Swan and Vega, the Vulture.

In his sixth labor, which Hercules had to finish in only one day, he had to clean out the stables of King Augeas. The stables, used by 3000 cattle, had not been cleaned for thirty years. Hercules changed the flow of two rivers so that they would flow through the stables. The torrent of water from the two rivers tumbled through the stables and cleaned them thoroughly in only a day. King Augeas had promised Hercules a tenth of his herd to accomplish this task, but when it was done, he refused to pay. He said that Hercules was working for King Eurystheus so it didn't count as a job done for King Augeas. In the sky, the rivers are identified with the river Eridanus and the stream of water in Aquarius, the Water Carrier.

For his seventh labor, Hercules had to bring back to King Eurystheus the fire-breathing bull that was terrorizing the people of Crete. The bull was sent to Crete because King Minos had neglected to make an offering to the gods. Hercules caught the Cretan bull, tamed him, and rode the bull across the sea to present him to King Eurystheus. The King, who had been frightened by the boar that Hercules brought to him, was terrified of the Cretan bull. He gave an order that sent the bull away and it was free to wander and terrorize the countryside until Theseus killed it.

In his eighth labor, Hercules had to deal with the fierce man-eating horses of Diomedes. Diomedes had all strangers who came to his country tied up and thrown to these horses to be eaten. Hercules drove the horses into the sea. Diomedes and his army chased after Hercules and a fierce battle ensued. After killing off the army, Hercules threw Diomedes to the horses. As soon as the horses ate Diomedes, they became tame. Hercules brought them to Eurystheus who was as frightened of the horses as he had been of the bull and boars. He had them released into the forest.

Hippolyte, the queen of the Amazons owned a golden girdle that was a beautiful article given to her by Ares. Eurystheus had a daughter, Admete, who admired the girdle and wanted it, so the King sent Hercules to get the girdle for her. Hippolyte did not mind giving Hercules the girdle for Admete, and so this labor seemed to be easily accomplished. However, Juno was not over her anger toward Hercules. She hinted to the Amazons that Hercules wanted to steal their queen. They were so inflamed that they attacked him. During the battle, Hercules killed the Amazons, including Queen Hippolyte, and took her girdle. He then took the girdle to King Eurystheus to successfully complete his ninth labor. In the sky, the constellation of Andromeda is often related to Hippolyte, with Pegasus making the connection with the Amazon horsewomen. The girdle of Hippolyte is a band of stars that in the Andromeda story represented the chains by which Andromeda was held to the rocks, awaiting her sacrifice to Cetus.

Hercules had to journey to an island in the Atlantic Ocean for his tenth labor. On his way from the Mediterranean Sea to the Atlantic, he split a mountain in two, leaving a huge rock on each side of his crossing. The rocks, still called the Pillars of Hercules, are Gibraltar and Ceuta. For this labor, the King sent Hercules to capture the oxen of Geryon, a giant who lived on the island of Erythea. Hercules again found a good use for the skin of the

(Continued on page 11)

NASA UPDATES

Another of an occasional series of articles about NASA missions and their milestones

Aquarius

Aquarius launched into polar orbit on June 10, 2011 from Vandenberg Air Force Base atop a Delta II rocket. Its mission is to study the ocean surface salinity, producing a detailed global map every 7 days. Monitoring changes in salinity over time will aid our understanding of our oceans.

For more information, please visit the Aquarius Home Page at <http://aquarius.nasa.gov/>. The site includes a variety of Interactive Tools: http://aquarius.nasa.gov/education-datatool_jpl.html.

From the Aquarius site:

Funded under NASA's Earth System Science Pathfinder Program, the Aquarius instrument will collect sea surface salinity (SSS) data over the global oceans. SSS is key to understanding the water cycle because 86% of global evaporation and 78% of global precipitation occur over the oceans. Together with in-water profiles from the ARGO system, scientists will have an unprecedented three-dimensional view of ocean salinity patterns. With these data and advanced computer models, we will discover how our oceans are tied to water cycle and climate.

Our education technology team has developed a set of interactive tools using historical salinity, temperature, and density data sets (2005 NOAA World Ocean Atlas & Database for the "Flat Map Interface" and 2009 NOAA World Ocean Atlas & Database for the "GoogleEarth Interface"). These data are available as three distinct yet complementary tools that highlight: (1) spatial patterns of long-term mean data; (2) annual cycle of monthly mean data; and (3) change over time of yearly mean data. Each interactive tool has its own "Tutorial" slide show.

Dawn

Dawn was launched on September 27, 2007 on its mission to asteroids Vesta and Ceres. Dawn will go into orbit around Vesta during July 2011. The start of science operations in August will be commemorated with a "Vesta Fiesta" outreach program.

Ceres and Vesta are the two largest asteroids in the solar system. Dawn is the first mission that was designed to orbit two separate bodies, spending nearly a year at each. Using an innovative ion thruster, the spacecraft has been making slow, steady progress to match its orbit to that of Vesta. Next year, Dawn will continue its journey, leaving Vesta and accelerating towards a rendezvous with Ceres in 2015.

From the Dawn site:

The top level question that the mission addresses is the role of size and water in determining the evolution of the planets. Ceres and Vesta are the right two bodies with which to address this question, as they are the most massive of the protoplanets, baby planets whose growth was interrupted by the formation of Jupiter. Ceres is very primitive and wet while Vesta is evolved and dry. The instrumentation to be flown is complete, flight-proven and similar to that used for Mercury, Mars, the Moon, Eros and comets. The science team consists of leading experts in the investigation of the rocky and icy planets using proven measurement and analysis techniques.

Dawn has the potential for making many paradigm-shifting discoveries. Ceres may have active hydrological processes leading to seasonal polar caps of water frost, altering our understanding of the interior of these bodies. Vesta may have rocks more strongly magnetized than on Mars, altering our ideas of how and when dynamos arise with important lessons for Mars, Earth and Mercury. Ceres may have a thin, permanent atmosphere distinguishing it from the other minor planets.

The three principal scientific drivers for the mission are first that it captures the earliest moments in the origin of the solar system enabling us to understand the conditions under which these objects formed. Second, Dawn determines the nature of the building blocks from which the terrestrial planets formed, improving our understanding of this formation. Finally, it contrasts the formation and evolution of two small planets that followed very different evolutionary paths so that we understand what controls that evolution.

This mission is very timely. Its journey in time to understand the conditions at the formation of the solar system provides context for the understanding of the observation of extra solar-planetary systems. It provides data on the role of size and water in planetary evolution and forms a bridge between the exploration of the rocky inner solar system and the icy outer solar system. Finally, it completes the first order exploration of the inner solar system, addresses NASA's goal of understanding the origin and evolution of the solar system and complements ongoing investigations of Mercury, Earth and Mars.

TCAA Treasurer's Report – June 2011

OPERATING FUND BALANCE – May 31, 2011 - \$ 1,684.06

Income

Mark Cabaj (Dues) - \$ 60.00

Expenses

LYB Inc. (Observer copies & postage) - \$ 17.14

Astronomical League (Dues) = \$ 145.00

OPERATING FUND BALANCE – June 30, 2011 - \$ 1,581.92

OBSERVATORY FUND BALANCE – May 31, 2011 - \$ 2,753.33

Income

None - \$ 0.00

Expenses

None! - \$ 0.00

OBSERVATORY FUND BALANCE – June 30, 2011 - \$ 2,753.33

TOTAL TCAA FUNDS – June 30, 2011 - \$ 4,335.25

Respectfully submitted,

L. Duane Yockey, Treasurer

CONSTELLATION OF THE MONTH: HERCULES—THE STRONGMAN (CONT.)

(Continued from page 9)

Nemean lion, making it into a sail for the boat he borrowed from Helios, the Sun God. When he reached the island, he found that a guardian and a two-headed dog watched over Geryon's oxen. He defeated these caretakers and took the oxen. Geryon followed to recapture his cattle, but was killed by the poison-tipped arrows of Hercules. After a difficult journey, he delivered the cattle to King Eurystheus, who offered them as a sacrifice to Juno.

In his eleventh labor, Hercules had to go to the Underworld and return with Cerberus, the dog that guarded the gates. Cerberus had three heads and a spiked tail. He was a fearsome creature, and this was thought to be the most difficult labor of all. However, Hercules asked permission from Pluto, the God of the Underworld, to borrow Cerberus. Pluto agreed that Hercules had permission to take Cerberus if he could. Cerberus was strong, but Hercules fought with him and squeezed the breath from him. Then he took Cerberus to the King. The King, again, was very frightened to get what he had asked for, and ordered Cerberus to be returned to the Underworld.

For his twelfth labor—the one that would set him free, if he accomplished it—Hercules had to bring back to the King the Golden Apples of the Hesperides. The Hesperides guarded the tree where the apples grew. However, Hercules did not know where to find them. As he was searching, he came across Prometheus, who was chained in the Caucasus Mountains as a punishment from Jupiter. Jupiter was angry because Prometheus had given the gift of fire to mortal men, thus making them less dependent on the gods. Each day Jupiter sent the Eagle to eat out his liver, and each day it would grow back again. When Hercules saw this torment, he used one of his poisonous arrows to kill Aquila and end the punishment. In return, Prometheus helped Hercules by telling him to go to Atlas to get the help he needed. Hercules went to Atlas, who was holding the Earth on his shoulders, and asked where to find the Golden Apples. Atlas said that his daughters, the Hesperides, guarded them because the apples belonged to Juno. They would not let anyone but Atlas come to their garden. Atlas agreed to get the apples if Hercules would hold up the heavens for him in his absence. So Hercules took the heavens onto his shoulders and waited for the return of Atlas bringing the apples. However, when Atlas returned, he felt that it was a good chance to get away from such a burdensome job. He told Hercules that he would take the apples to King Eurystheus. Hercules agreed that this would be a good idea, but asked Atlas to hold the heavens for a minute so that he could fold his lion skin and make a soft pad to put on his shoulders to cushion the weight of the heavens. Atlas took the weight onto his shoulders, only to watch in dismay as Hercules picked up the apples, and went on his way. Finally, Hercules was able to complete this twelfth labor, and finally earn his freedom.

MISSING OUT ON TCAA ACTIVITIES & EVENTS?

If you are missing out on club activities or celestial events, be certain to join the TCAA listserv. Many activities are planned at the last minute, and announced only hours in advance through the club's listserv. Reminders about celestial events are also broadcast to the membership through the club's listserv. To join this free service by Yahoo, send a blank email to TCAA-subscribe@yahoogroups.com. Unsubscribing is just as easy. To unsubscribe, just send a blank email to TCAA-unsubscribe@yahoogroups.com.

To keep up to date on celestial events not described in *The OBSERVER* or addressed in the listserv, visit Carl Wenning's observing page at www.phy.ilstu.edu/~wenning/observing_page.htm. It has been recently updated to include an extended sky calendar of events as well as additional space weather and satellite viewing links.

2011 POS SCHEDULE AND COORDINATORS

The remaining 2011 POS schedule is as follows:

- ☆ August 6: Small Bodies – Large Impacts (9 day old moon) Coordinator: *Dave Osenga*
- ☆ September 3: Phases of the Moon (7 day old moon) Coordinator: *Carl Wenning*
- ☆ October 1: Jupiter's Moons (4 day old moon) Coordinator: *Tom Weiland*

The OBSERVER

Newsletter of the TCAA, Inc.

Erin Estabrook, Editor
314 Covey Court
Normal, IL 61761

Are your dues due?



The Dues Blues?

If you see a check in the box above, it means your dues are due. To retain membership, please send your dues renewal to our esteemed Treasurer:

**Duane Yockey
508 Normal Avenue
Normal, IL 61761**